

D.E

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Q-1

write a short note on cables.

⇒ An electrical cable is assembly of one or more wires running side by side or bundled which is used to carry electric current.

⇒ T/Hs of cables

There are many T/Hs of wires or cables such as single core, two core, three core, four core, ~~single~~ ribbon core, multicore, fibre core, screened cable, co-axial cable, twin core cable, twisted pair cable, teflon coated cable, fiber, Pt cable etc.

Here we shall study the following T/Hs of cables

- 1 Ribbon cable
- 2 Screened cable
- 3 Co-axial cable
- 4 Twisted pair cable
- 5 fiber optic cable

① Ribbon cable -

In this T/Hs of cables, many insulated wires of single strand are kept together in the form of ribbon.

- P.C.B. edge connectors are used at each end.

② Screened cable -

In this T/Hs of cable PVC insulation is provided over the stranded cores of copper conductors.

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③ Co-axial cable -

in this type co-axial cables thickness of the core is less while the thickness is more as thick than co-axial cable.

④ Twisted pair cable -

in this type of cable there are more than two twisted pairs

⇒ there are two types

1- U.T.P (unshielded twisted pair)

2- S.T.P (shielded twisted pair)

⑤ Fiber optic cable -

This type of cable is used for fiber optic communication

- in this fiber is used in place of conductor and light rays are used instead of electrical current

Q-2 Write a note on logic gates.

⇒ Logic gates are the basic building blocks of any digital system. It is an electric circuit having one or more than one input and only one output. The relationship between on certain logic based on this logic gates are named as and gate or gate, nor gate etc as and gate or gate, nor gate etc

→ The basic logic gates are classified into seven types

⇒ Logic gates are used in microprocessor chips that are used in digital devices. All the operations are carried out through logic gates in digital electronics. Logic gates are mostly used

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⇒ Importance of Logic gates -

Logic gates are used to define the stat of a system that has many inputs and outputs so that more complex units are created such as arithmetic units, memory elements etc. For programs, a multi-armed man is like the computer, given what you see on the screen of your computer.

P-4 ~~Write~~ Write a short note on multi-meter

⇒ multimeter is used to measure d.c./a.c. voltages and currents, resistance and to find the continuity to find the continuity of circuit

⇒ A P.M.M.C type microammeter is used in it

⇒ voltage divider circuit made of different resistors is used for different ranges

⇒ A.C. voltage is rectified by a diode to convert it into d.c.

⇒ shunts are used for different current ranges and a conversion circuit is for resistance measurement

Digital multimeter -

a digital multimeter can measure d.c. voltage, a.c. voltage and resistance just as an analog multimeter.

⇒ Digital multimeter voltmeter is used the main port of the meter

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These quantities are converted into D.C. voltage which is measured by the voltmeter

⇒ There are two types of digital multimeter

1. Hand hold types
2. Table top types

Q-5 Explain Energy Band

Q-5 Explain Energy Band diagram with conductors, semiconductors & insulators.

⇒ Solids are divided into three different categories.

- ① Conductors
- ② Semiconductors
- ③ Insulators

Energy bands -

The difference in behavior of solids as regards their electrical conductivity can be beautifully explained in terms of energy band

① Conductors Band -

Here electrons are tightly bound to the nucleus and play no part in the conduction process. Conduction band is a lower energy band near to nucleus

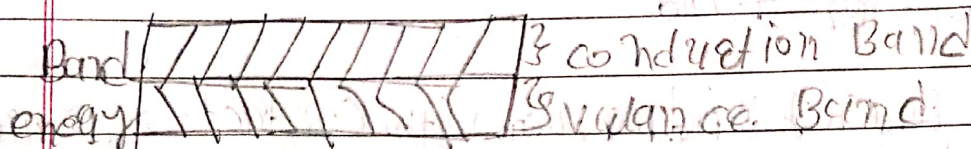
② Valence Band -

The Valence band of energy level of valence electrons is known as valence band.

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③ forbidden Energy gap - The space between conduction band and valance band on the energy level diagram is known as forbidden energy gap

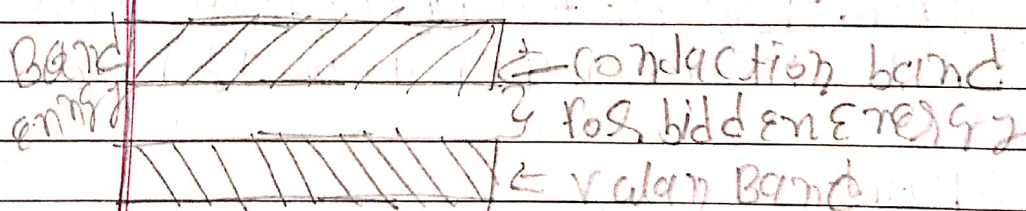
① Conductors -



→ conductors are those substances that can allow easily flow of current through them.

→ As show in fig (1) valance band and conduction band overlap each other

② Semi-conductors.



→ Semiconductors are those substances whose electrical conductivity lies between conductors and insulators

→ further the energy gap between valance and conduction band is very small

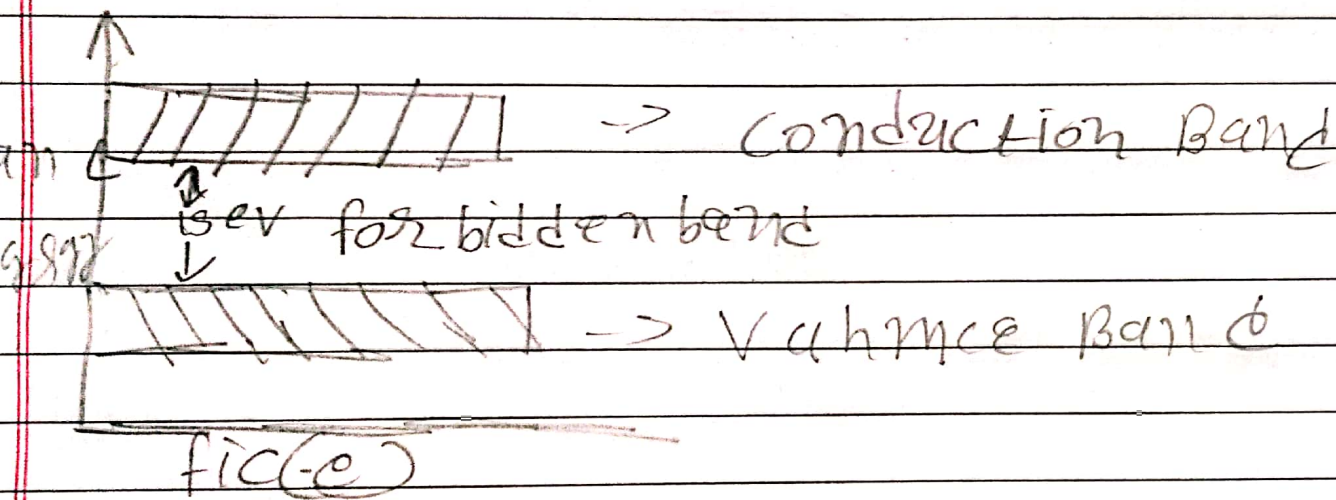
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Insulators.



Insulators are those systems which do not allow the flow of electric current though they

have the energy gap between valence & conduction band is very large as in fig (c)